

Delaware - 2007

Forest Health Highlights



The Resource

Delaware's forests presently cover approximately 370,000 acres, roughly one-third of the land area in the State. Delaware has experienced a rapid conversion of forests and agricultural lands to residential and other urban uses since the 1980s.

Weather Conditions

For the third consecutive year, Delaware experienced summer drought conditions. During the 5-month period from May through September, a statewide average of 12.5 inches of rain fell. The normal rainfall during this period is about 20 inches. Drought stress predisposed trees to insect and disease issues such as borers and Hypoxylon canker, which are not common in healthy trees.

Forest Pest Issues

Gypsy Moth — Surveys in the fall of 2006 found higher egg mass counts than in previous years. In June 2007, an aerial survey of the entire State found 287 acres of gypsy moth defoliation in Sussex County. Sweetgum was the preferred host.

Southern Pine Beetle (SPB) — An aerial survey of the entire southern portion of the State in June 2007 revealed no significant SPB hot spots. Delaware again participated in the Southwide Southern Pine Beetle Pheromone Study. Beetle counts from four pheromone-baited Lindgren funnel traps indicate that the population is at a low or declining level.

Asian Longhorned Beetle (ALB) — Delaware's urban and rural forests contain a high percentage of maples, a preferred host species of this beetle. Trees at the Port of Wilmington were again inspected in 2007 for signs of ALB. To date, this pest has not been found in Delaware.

Emerald Ash Borer (EAB) — This pest has killed more than 25 million ash trees in the Midwest. Ash represents only about 1 percent of Delaware's rural forests but is a significant component of the urban forest in some areas. Delaware Forest Service staff members have assisted with eradication efforts in neighboring Prince George's County, MD, and implemented new surveys in 2007 at the Port of Wilmington. In addition, the Delaware Forest Service, APHIS, and the Plant Industries Section have jointly developed an EAB response plan to guide response efforts if this pest is found in Delaware in the near future.

Sirex Wood Wasp — *Sirex noctilio* presents a threat to loblolly pine, the mainstay of the forest products industry in southern Delaware. A trap tree program was implemented in 2007 to survey for this pest. Eighteen loblolly, Virginia, and red pine trees throughout the State were mechanically girdled. Unbaited Lindgren funnel traps were hung from each tree and were serviced from May through October. Several native Siricids were identified, but *Sirex noctilio* was not found.

Other Insects — In 2007, service foresters reported light to moderate defoliation by bagworm moth, similar to 2006 levels. Eastern tent caterpillar and fall webworm caused light defoliation throughout the State. While some damage was reported from locust leafminer, red-headed pine sawfly, and periodical cicada, damage from these pests appeared to be less than in 2006.

Disease Concerns

Bacterial Leaf Scorch (BLS) (*Xylella fastidiosa*) — After extensive statewide surveys in 2006 and 2007, this disease is now known to be common throughout Delaware in both urban and traditional forest settings. In urban areas, pin and northern red oaks are primarily affected. In rural woodlots, the disease has been confirmed in scarlet, black, northern red, and southern red oaks. BLS has emerged as a key forest health concern in Delaware.

Hypoxylon Canker (*Hypoxylon atropunctatum*) — Scattered damage and mortality due to Hypoxylon canker were seen throughout the State. This pathogen generally causes disease only in stressed trees. Three consecutive years of drought have predisposed trees to infection. While many species were affected, oaks—especially southern red, white, and black—were most damaged.

Verticillium Wilt — This fungal disease continues to cause limited mortality in landscape and forest trees, including yellow-poplar, maples, and redbud.

Pinewood Nematode (*Bursaphelenchus xylophilus*) — Although not a threat to native forests, this pest attacks exotic pines under stress and causes pine wilt disease. Consecutive years of summer drought have resulted in considerable mortality in Japanese black pine, which is planted extensively in Delaware. As a result, pinewood nematode is a major concern for urban foresters and arborists in some areas of the State.

Sudden Oak Death — A new stream survey program for *Phytophthora ramorum* took place in 2007. Delaware Forest Service personnel deployed rhododendron leaves in flowing water at three sites. Leaves act as bait for any *Phytophthora* spores that may be present in the stream water. After the leaves have been soaked for 1 to 2 weeks, personnel retrieve the leaves and send them to labs for analysis and culturing. This process was repeated five times between May and October. To date, this pathogen has not been detected in Delaware.

Forest Health Monitoring

FHM Herpetological Monitoring — Monitoring terrestrial woodland salamander populations provides a more complete assessment of forest ecosystem health. In 2007, 11 State FHM plots

were resurveyed for salamanders using wood cover boards. The 8- by 8-inch rough-cut oak boards were spaced 50 feet apart on an 8 by 8 grid (64 total cover boards per plot). Salamander counts appear stable over the 9-year monitoring period.

Deer Exclosures — Delaware's white-tailed deer herds benefit from near-ideal habitat and mild winters. As a result, deer populations have reached very high densities. Deer browsing has been documented as a factor affecting understory composition and ingrowth in hardwood forests. A study was initiated in 2005 to quantify the browse effect. Seventeen 10- by 10-meter fenced exclosures have been installed in areas where oaks constitute at least 40 percent of stand basal area. Measurements are taken at each exclosure and its accompanying control plot. Future measurements will detect any differences due to the browse effect.

Forest Fragmentation

A 2006 study by the Delaware Forest Service using Geographic Information System technology estimated that the rate of forest loss due to development was approximately 3,000 acres per year from 2002 to 2006. New data that will become available in 2008 will provide a more exact estimate as well as further analyses of the rate of forest conversion to other land uses. Because 3,000 acres represents about 1 percent of Delaware's forest resource, forest fragmentation is a top concern for the Delaware Forest Service and other land management agencies in the State.

For More Information



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